

*EQ: What are the relationships of parts of circles, and how can they be used?*

A **circle** is all of the points that are the same distance from the \_\_\_\_\_. That distance is known as the \_\_\_\_\_.

A **chord** is a line segment inside a circle where each \_\_\_\_\_ is on the circle.

The \_\_\_\_\_ is a special chord that also goes through the center.

A **central angle** is one that has its \_\_\_\_\_ at the center of the circle.

A **central angle** creates a \_\_\_\_\_ arc and a \_\_\_\_\_ arc. The **minor arc** is the part of the edge of the circle \_\_\_\_\_ the central angle (the smaller part) and the **major arc** is the part of the edge of the circle \_\_\_\_\_ the central angle (the larger part).

A **semicircle** is \_\_\_\_\_ a circle.

A **tangent line** touches the circle at exactly \_\_\_\_\_. It will be \_\_\_\_\_ to the radius that touches that point.

An **inscribed angle** has its vertex on the \_\_\_\_\_ of the circle.

The **degree measure of a minor arc** is the same as the \_\_\_\_\_ that contains it.

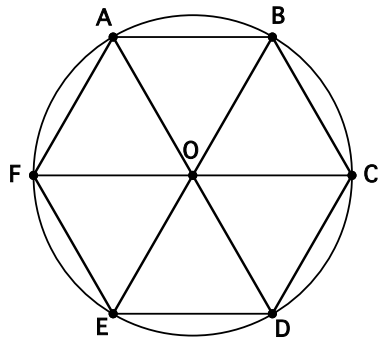
The **degree measure of a major arc** equals  $360 -$  the degree measure of its minor arc.

Use this formula to find the **length of an arc**:

where  $r$  is the radius and  $D$  is the degree measure of the arc.

The **measure of an inscribed angle** is \_\_\_\_\_ the measure of the arc it contains.

Example 1: The figure shows a regular hexagon inscribed in circle  $O$ . The radius is 6 cm. (Not drawn to scale)

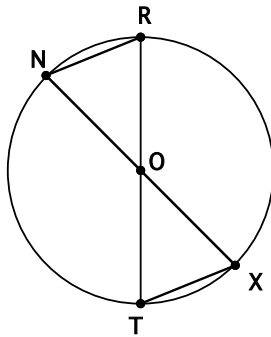


a. What is the measure of  $\widehat{CFD}$ ?

b. What is the length of  $\widehat{AC}$ ?

c. What is the length of  $\widehat{AEC}$ ?

Example 2: The diameter of circle  $O$  is 16 in. Triangles  $NOR$  and  $TOX$  are equilateral. (Not drawn to scale)

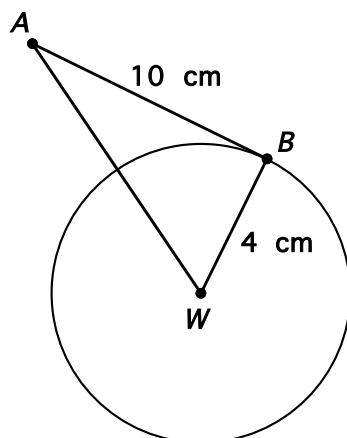


a. What is the measure of  $\widehat{RX}$ ?

b. What is the length of  $\widehat{RX}$ ?

c. What is the measure of  $\widehat{NT}$ ?

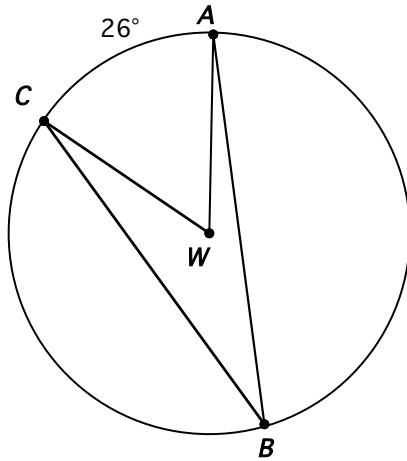
Example 3:  $\overline{AB}$  is tangent to circle  $W$  at point  $V$ . (Not drawn to scale)



a. Find the  $m\angle WBA$ .

b. Find  $AW$ .

Example 4:  $\angle ABC$  is inscribed in circle  $G$ . What is the measure of  $\angle ABC$  ? What is the measure of  $\angle AWC$  ? (Not drawn to scale)



Example 5: A circle graph shows the percentage of students that are male vs. female at A-C. Currently, there are 392 males and 385 females enrolled in the secondary school. Approximately, what percent is male? Female? Approximately what degree measure would represent the males in a circle graph? Complete a circle graph of the data.

